L8 ANSWER 1 OF 2 MEDLINE on STN
AN 1998126188 MEDLINE
DN 98126188 PubMed ID: 9466712
TI Leukemia inhibitory factor and ciliary neurotrophic factor regulate **dendritic** growth in cultures of rat sympathetic neurons.
AU Guo X; Metzler-Northrup J; Lein P; Rueger D; Higgins D
CS Department of Pharmacology and Toxicology, State University of New York, Buffalo 14214, USA.
SO BRAIN RESEARCH. DEVELOPMENTAL BRAIN RESEARCH, **(1997 Dec 19)** 104 (1-2) 101-10.
Journal code: 8908639. ISSN: 0165-3806.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199803
ED Entered STN: 19980407
Last Updated on STN: 20000303
Entered Medline: 19980320
AB Cytokines such as leukemia inhibitory factor (LIF) and ciliary neurotrophic factor (CNTF) have previously been shown to regulate neurotransmitter and neuropeptide synthesis in sympathetic neurons [P.H. Patterson, Leukemia inhibitory factor, a cytokine at the interface between neurobiology and immunology, Proc. Natl. Acad. Sci. USA 91 (1994) 7833-7835]. We considered the possibility that these agents may also affect the development of neuronal cell shape. Intracellular dye injection and immunocytochemistry were used to assess **dendritic** growth in cultures of perinatal rat sympathetic neurons and the effects of LIF and CNTF were compared to those of osteogenic protein-1 (**OP-1**), a growth factor that induces profuse **dendritic** growth in these neurons [P. Lein, M. Johnson, X. Guo, D. Rueger, D. Higgins, Osteogenic protein-1 induces **dendritic** growth in rat sympathetic neurons, Neuron 15 (1995) 597-605]. Under control conditions, sympathetic neurons formed only axons. Exposure to either LIF or **OP-1** stimulated **dendritic** growth, but the magnitude of the response to LIF was much less than that obtained with **OP-1** with respect to both **dendritic** number and length. Simultaneous exposure to LIF and **OP-1** resulted in **dendritic** growth equivalent to that observed in the presence of LIF alone, suggesting that LIF inhibits the response of neurons to **OP-1**. Both the stimulatory and inhibitory effects of LIF were mimicked by CNTF, but not by other growth factors. These data suggest that LIF and CNTF regulate **dendritic** development in a complex manner that is dependent on both the morphological state of the neuron and the presence of other growth factors. However, the net effect of exposure to these cytokines appears to be the production of a population of neurons with rudimentary arbors consisting of only one or two short **dendrites**.

L8 ANSWER 2 OF 2 MEDLINE on STN
AN 96009856 MEDLINE
DN 96009856 PubMed ID: 7546739
TI Osteogenic protein-1 induces **dendritic** growth in rat sympathetic neurons.
AU Lein P; Johnson M; Guo X; Rueger D; Higgins D
CS Department of Biology, Canisius College, Buffalo, New York 14208, USA.
SO NEURON, **(1995 Sep)** 15 (3) 597-605.
Journal code: 8809320. ISSN: 0896-6273.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals

IDS

EM 199510
ED Entered STN: 19951227
Last Updated on STN: 19980206
Entered Medline: 19951025

AB Sympathetic neurons from perinatal rat pups extend only a single axon when maintained in culture in the absence of glia and serum. Exposure to recombinant osteogenic protein-1 (**OP-1**) selectively induces the formation of **dendrites** that correctly segregate and modify cytoskeletal and membrane proteins and form **synaptic** contacts of appropriate polarity. **OP-1** requires nerve growth factor (NGF) as a cofactor, and, in the presence of optimal concentrations of NGF, **OP-1**-induced **dendritic** growth from cultured perinatal neurons is comparable to that observed in situ. Sympathetic neuroblasts that had not formed **dendrites** in situ also responded to **OP-1** in culture, indicating that **OP-1** can cause de novo formation as well as regeneration of **dendrites**. These data imply that specific signals can regulate the development of neuronal shape and polarity.

L4 ANSWER 13 OF 32 MEDLINE on STN
AN 95223110 MEDLINE
DN 95223110 PubMed ID: 7707865
TI Developmental alteration and neuron-specific expression of bone **morphogenetic** protein-6 (BMP-6) mRNA in rodent brain.
AU Tomizawa K; Matsui H; Kondo E; Miyamoto K; Tokuda M; Itano T; Nagahata S; Akagi T; Hatase O
CS Department of Physiology, Kagawa Medical School, Japan.
SO BRAIN RESEARCH. MOLECULAR BRAIN RESEARCH, **(1995 Jan)** 28 (1) 122-8.
Journal code: 8908640. ISSN: 0169-328X.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199505
ED Entered STN: 19950518
Last Updated on STN: 20000303
Entered Medline: 19950510
AB Bone **morphogenetic** proteins (BMPs) are a group of proteins which induce bone formation from mesenchymal cells. The existence of BMPs in the nervous system as well as in bone tissue has recently been reported. In this study, we show that BMP-6 is neuron-specific, and describe the temporal and spatial expression patterns of BMP-6 mRNA in the developing rat and gerbil brain. Northern blot analysis showed that the BMP-6 transcript level was specifically high from newborn to 3 weeks after birth compared with those in fetal and adult rats. In situ hybridization showed that most of the neurons possessed high levels of BMP-6 mRNA in the neonatal brain, while in the adult brain, BMP-6 mRNA level was significantly decreased in most of the neurons except those in **hippocampus** which retained high levels. Furthermore, to show that the BMP-6 expression was specific to neurons, we induced delayed neuronal cell death and compensative glial cell proliferation in the gerbil **hippocampus** by transient ischemia. Our findings collectively suggest that BMP-6 is neuron-specific and may play important roles in neuronal maturation and **synapse** formation.